

EXECUTIVE SUMMARY

The State of Utah sets rainy-day fund balance targets based upon revenue volatility. While volatility in both the General Fund and Education Fund appeared to decrease as our economy grew between 2017 and 2020, it has since increased due to the COVID-19 pandemic and the ensuing economic downturn and policy interventions. Analysts suspect volatility will decrease again post-pandemic, and as such we recommend no changes to current rainy-day fund targets. Similarly, federal fund volatility has increased dramatically due to the pandemic. Such federal support is intended as countercyclical and as such should not influence rainy-day fund levels. Since the last volatility report in 2017, legislators have made significant progress toward reaching balance targets through appropriated deposits. As such, we do not recommend additional deposit mechanisms in this report.

Volatility of Major Revenue Sources

The State of Utah's two major revenue sources are the individual income tax and the state sales and use tax. The individual income tax (\$3.99 billion in FY 2020), the primary revenue source for the Education Fund (\$4.42 billion), tends to be more volatile than the sales and use tax (\$3.08 billion, including \$815 million in earmarks), the primary revenue source for the General Fund (\$2.82 billion). Of the state's other tax revenue sources, corporate taxes and the severance tax tend to be more volatile, while excise taxes on gasoline, cigarettes and tobacco, multichannel audio and video services, and insurance premiums are more stable.

Volatility within Utah's General Fund and Education Fund revenue sources is significantly correlated with the state's economic performance and the business cycle. Prior to the COVID-19 pandemic, volatility in both primary revenue sources was decreasing. The 2017 volatility report found that the state's aggregate revenue sources were becoming less volatile. Recent growth in General Fund and Education Fund revenue sources generally approximated long-run averages (i.e., 3.4% average growth in General Fund sources and 5.5% in Education Fund sources). The onset of the COVID-19 pandemic and ensuing recession reintroduced higher volatility into both revenue streams. However, the average percentage error¹ in the General Fund remains well below the current 9% statutory target. While the anomalous FY 2020 and FY 2021 Education Fund collections resulted in percentage errors above the statutory 11% target, the projected FY 2022 error drops to the level of the target and is likely to fall further in the future.

Rainy-Day Funds

Budget reserve accounts (or "rainy-day funds") exist to provide flexibility in dealing with a revenue decline. As of FY 2020 year-end transfers, the combined balance of the two main budget reserve accounts (General Fund Budget Reserve and Education Fund Budget Reserve) is \$740 million. This amount corresponds to 10.1% of General Fund and Education Fund appropriations for FY 2020. In addition, funds are set aside for Medicaid cost growth (\$75 million), Disaster Recovery (\$20 million) and Wildland Fire Suppression (\$5 million). These accounts also receive year-end surplus transfers like other budget reserve accounts.

¹ The percentage error is calculated by estimating a linear regression of the year-over-year growth rate and a one-year lag of the growth rate. The regression generates a predicted growth rate for each fiscal year, which is then applied to the actual collections for the year. The resulting predicted value is compared to the actual value, and the difference between the two is divided by the actual value to generate a percentage error, essentially, the error in terms of how well the previous year's collections predicts the current year's collections.

Tools for Managing the State Budget

The state has many tools for managing the budget, not just the rainy-day funds. These tools include the structure of the revenue system itself, the revenue estimating process, the revenue monitoring process, one-time solutions including nonlapsing balances (\$486 million at FY 2020 year-end, some used by Legislature for FY 2021 budget), restricted fund balances, and deferrals; as well as ongoing “working rainy-day funds” through the capital budgeting process, revenue increases, and budget reprioritization. Balances in Utah’s primary budget reserve accounts should be evaluated in the context of the state’s entire fiscal toolkit and the major findings of the most recent stress testing analysis; for this reason, we include a discussion of stress testing buffers in this document.

Based on the results of the 2019 budget stress test, Utah’s total budgetary reserves are sufficient to weather a severely adverse economic recession and are more than sufficient to weather the projected impacts of the COVID-19 recession.

Recommendations

LFA and GOMB recommend that the current automatic year-end surplus transfer targets of 11% of Education Fund appropriations and 9% of General Fund appropriations are sufficient for the automatic transfer process. Because these automatic transfer targets are percentage-based, the dollar amount of the targets increase over time as appropriations increase, meaning the budget reserve accounts will continue to grow over time as year-end surpluses occur. We do not recommend changing rainy-day fund targets for changes in federal fund volatility. These federal resources are intentionally volatile – acting as countercyclical interventions to stimulate a flagging economy. Finally, as policymakers have made significant progress toward hitting rainy-day fund balance targets in the last three years, we do not recommend additional deposit mechanisms in this report. To the extent that policymakers desire to increase budget reserve account levels above the existing statutory percentages, they may continue to appropriate additional funds to budget reserve accounts.

ANALYSIS

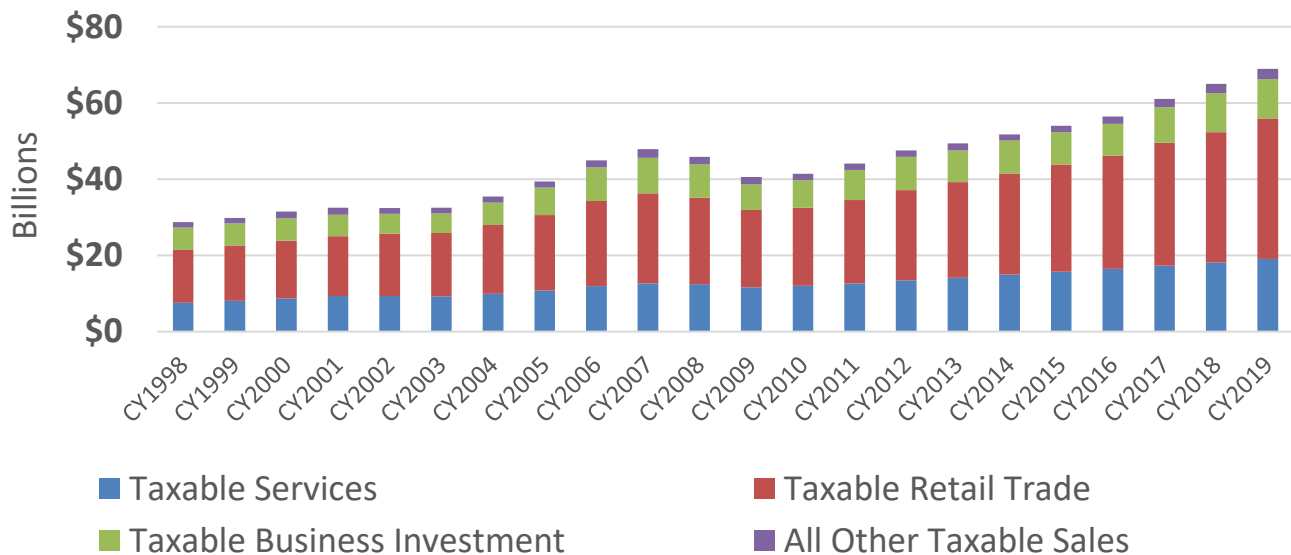
Statute ([UCA Section 63J-1-205](#)) requires the Legislative Fiscal Analyst and the Governor's Office of Management and Budget to (a) prepare a revenue volatility report every three years meeting certain conditions, (b) identify the balances in two of the state's rainy-day funds, and (c) make recommendations on automatic transfers to the state's budget reserve accounts. Understanding fluctuations in the state's major revenue sources and the causes of revenue variability can benefit policymakers as they make budget and tax decisions.

This report (a) highlights the volatility existing in the state's major revenue sources, (b) examines the causes of the volatility, (c) examines the state's budget management tools, and (d) explains the recommendation to maintain automatic year-end surplus transfers at the current percentages of appropriations.

Tax Base

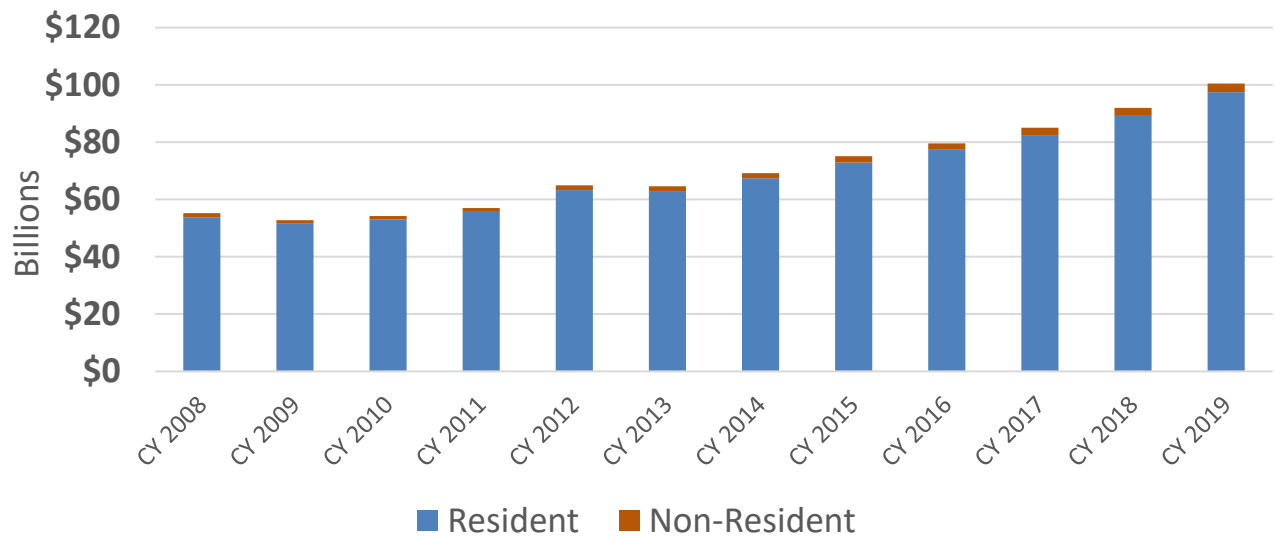
For the purposes of this report, Utah's tax bases are the total amount of income or sales that are subject to sales and income taxes in Utah. In FY 2021, the total sales tax base is estimated to be \$73.4 billion. This figure is broken out into sub-bases that are taxed at different rates, including residential fuel (\$1.7 billion), food (\$8.6 billion), and other (\$63.1 billion). The sales tax base has changed significantly in the past three years. The base has been broadened by the inclusion of remote sales and sales by third-party sellers and has been narrowed by new sales tax exemptions. Total taxable sales in Utah increased by nearly 140 percent between CY 1998 and CY 2019, with the largest growth in retail trade, followed by taxable services; see Figure 1 below.

FIGURE 1
Taxable Sales Base by Category



Utah’s income base, total resident and non-resident taxable income prior to tax credits, was over \$100 billion in CY 2019. Between CY 2008 and CY 2019, the income base grew nearly 82 percent. Figure 2 below shows this growth, categorized by resident and non-resident status.

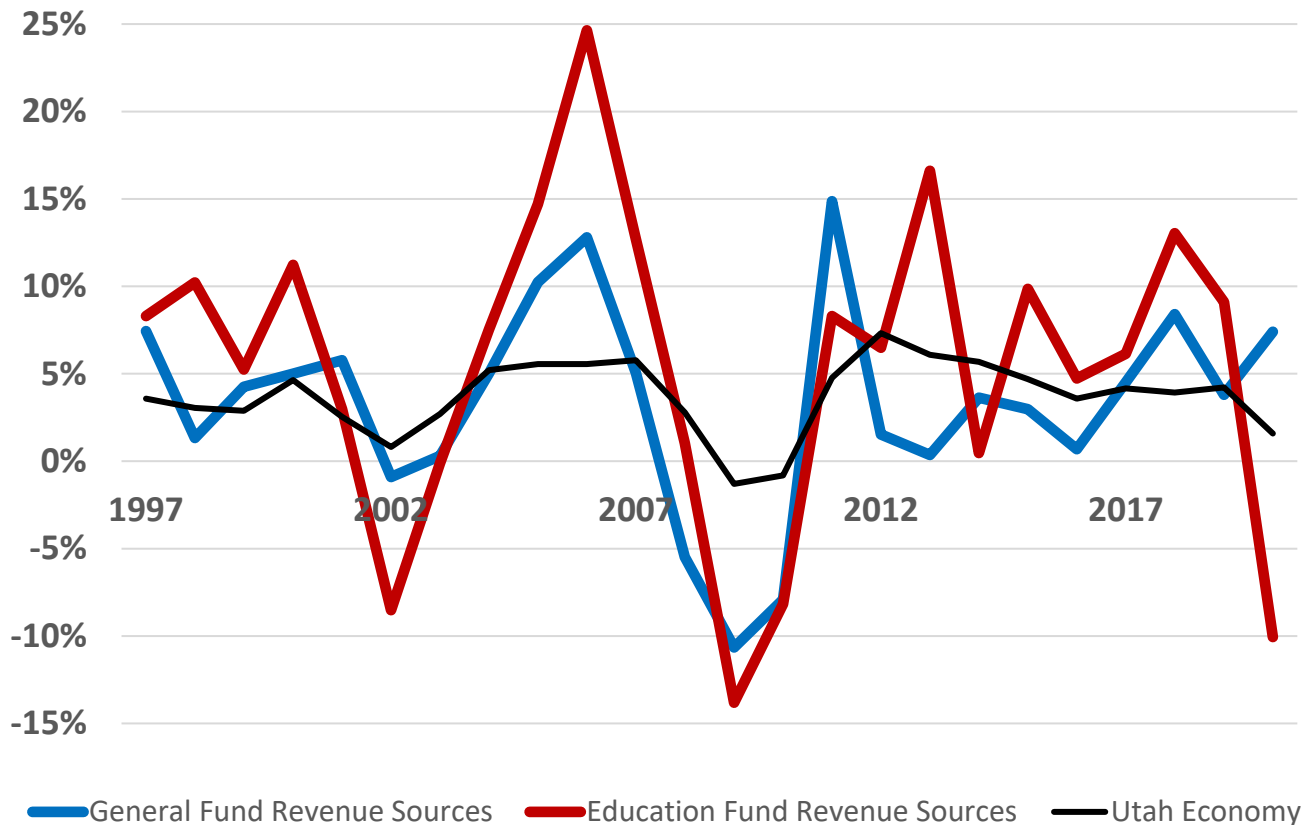
FIGURE 2
Utah Taxable Income by Resident Status



Volatility in Major Revenue Sources

The individual income tax and state sales and use tax (“sales tax”) are Utah’s largest state revenue streams. The individual income tax is more volatile than the sales tax. Because of this, the Education Fund, which receives individual income tax revenues, is more volatile than the General Fund, which receives sales tax revenues. Figure 3 below illustrates year-over-year change in General Fund revenue sources, Education Fund revenue sources, and the Utah economy as measured by the Federal Reserve’s coincident index for Utah.

FIGURE 3
Year-Over Change in General and Education Fund Revenue Sources



As shown in Figure 3, volatility within Utah’s General Fund and Education Fund revenue sources is significantly correlated with the state’s economic performance and the business cycle. To evaluate the volatility of these funding sources over the most recent three-year period (corresponding to the three-year cycle of this report), Figures 4 and 5 overlay the average year-over growth rates and standard deviation within each series. Figures 6 and 7 depict the absolute percentage error and three-year mean absolute percentage error (MAPE) associated with a one-year lag linear regression model. The rationale behind the selection of a single-year lag model to explain volatility follows a basic logic used to answer the question, “How well does the previous period predict or explain the following period?”

FIGURE 4
Central Tendency of General Fund Revenue Sources Year-Over Growth

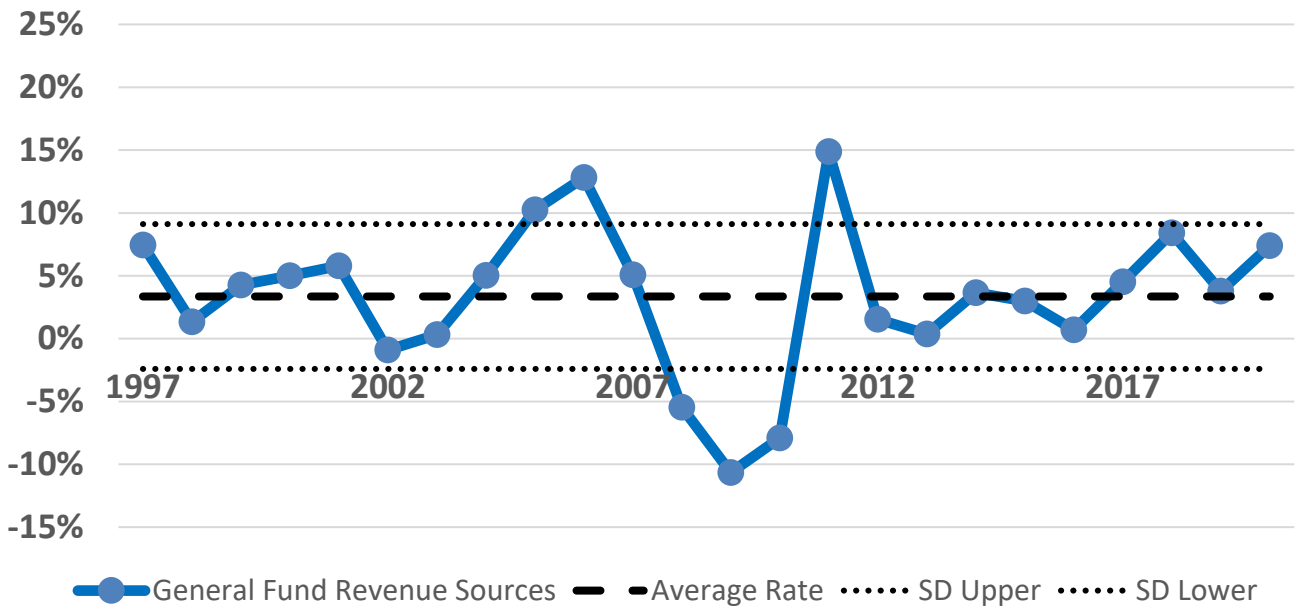
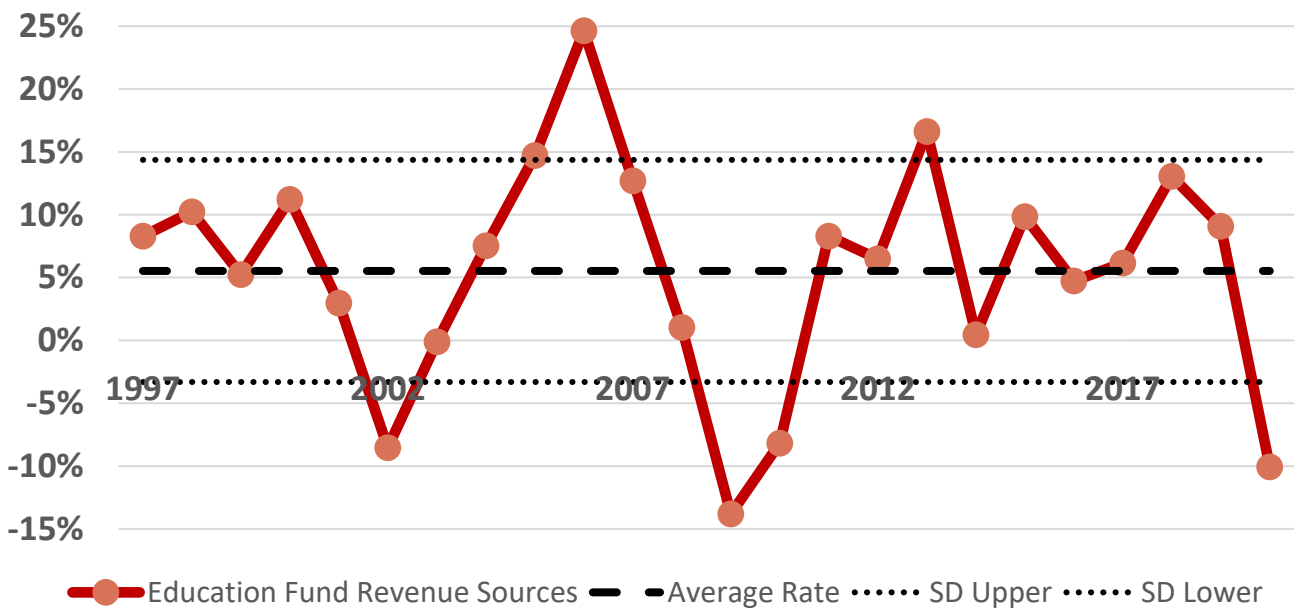


FIGURE 5
Central Tendency of Education Fund Revenue Sources Year-Over Growth



As seen in Figures 4 and 5, recent growth in General Fund and Education Fund revenue sources generally approximate long-run averages (i.e., 3.4% average growth in General Fund sources and 5.5% in Education Fund sources). Recent year growth rates have tended toward the upper standard deviation limit, particularly FY 2018 and FY 2020 in the General Fund and FY 2018 and FY 2019 in the Education Fund. The effects of the COVID-19 economic downturn, as well as federal stimulus intervention and the income tax filing delay, are likely to be largely responsible for the high growth in the General Fund and the precipitous decline in the Education Fund in FY 2020.

FIGURE 6
General Fund Revenue Sources Model Error and Three-Year Interval Model Error

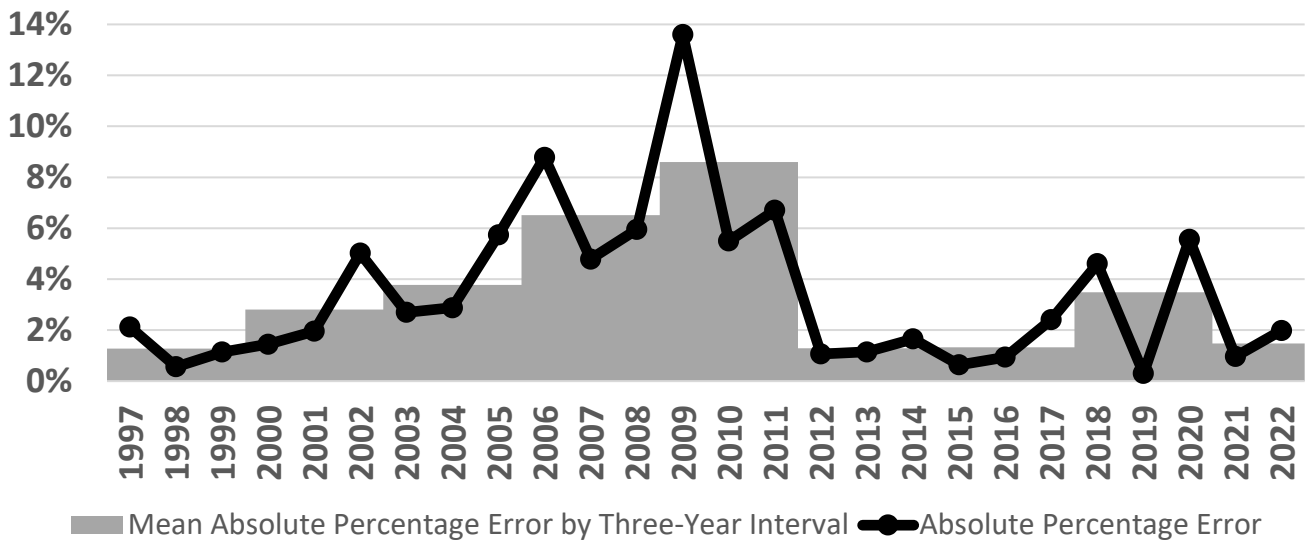
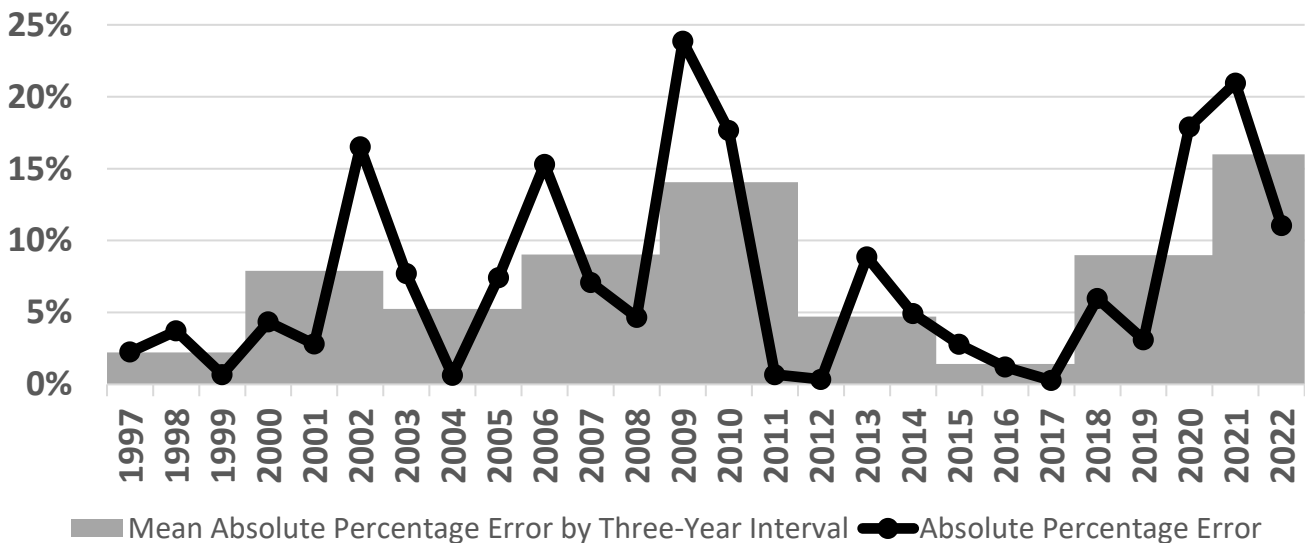


FIGURE 7
Education Fund Revenue Sources Model Error and Three-Year Interval Model Error



Figures 6 and 7 demonstrate that the predictability of General and Education Fund revenue sources was increasing in the mid-2010s, as the economy stabilized and grew following the Great Recession. However, the COVID-19 economic downturn has resulted in an increase in model percentage error in the most recent periods.

While the volatilities of revenue streams supporting the General Fund and Education Fund have been decreasing in aggregate, volatility behavior within individual collection sources is more variable. This is to be expected and is not necessarily something that can, or should, be avoided. However, it should be recognized that state policy choices surrounding tax collections (the imposition of new taxes, changing tax rates or adjusting the tax base) or the allocation of current collections (earmarking) can have an effect on

revenue stability and availability. These concepts are further examined by General Fund and Education Fund sources below.

General Fund Revenues

Economic sources of volatility in General Fund revenues include factors such as population growth, inflation, credit markets, oil and natural gas production, metal prices, insurance prices, alcohol and tobacco product purchases, changing technologies and other sources of state and national economic instability. The impact of economic factors such as these are most notable in unrestricted sales tax collections in the run-up to, and during, the years that span the Great Recession (Figure 8). Conversely, the unprecedented magnitude and timing of federal stimulus support helped to buoy sales tax revenue in FY 2020.

FIGURE 8
Central Tendency of Unrestricted Sales Tax Revenue Year-Over Growth

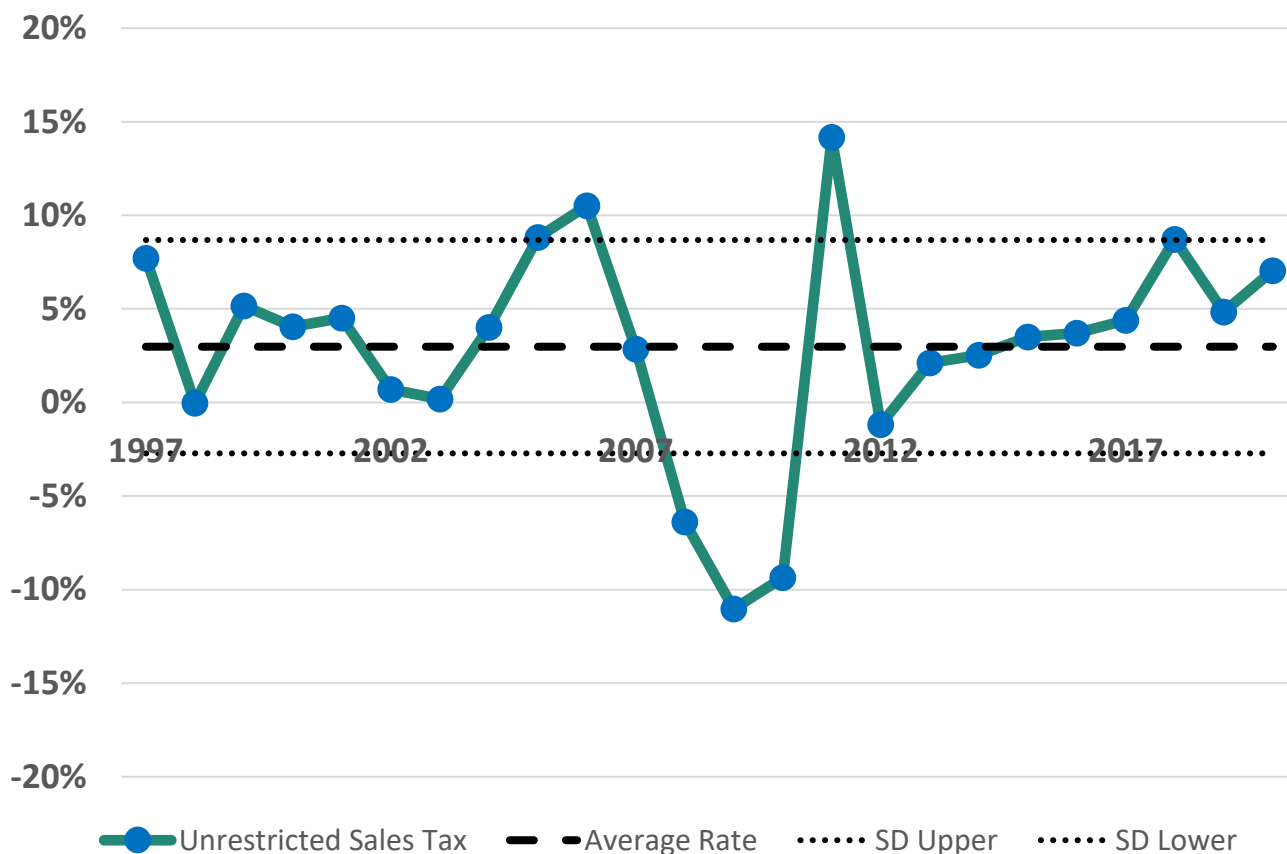
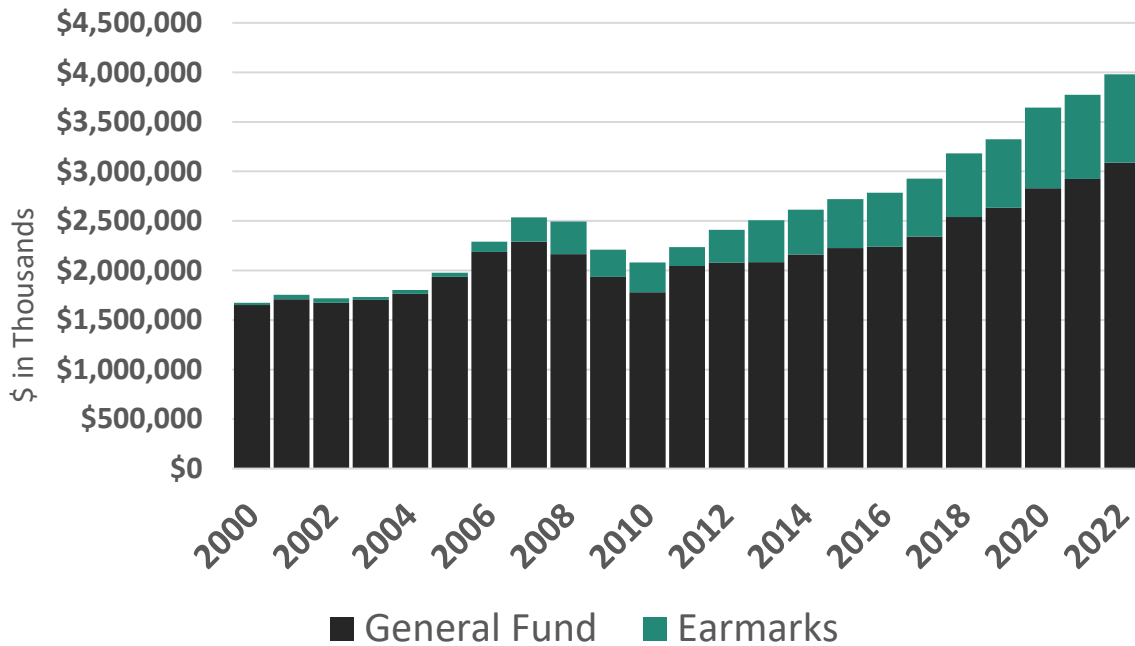


FIGURE 9
Sales Tax Earmarks and General Fund Levels



Figures 9, 10, and 11 show additional examples of economic and policy-induced volatility on tax revenues from sales, cigarette, tobacco and beer, and severance taxes. Earmarks can be a source of policy-induced volatility and have proliferated in recent years. Cigarette, tobacco and beer revenues are generally more stable, with the exception of a tax rate increase on cigarettes in 2010. Conversely, severance tax collections are particularly exposed to volatility from price changes in oil, gas, and metal markets, along with policy-induced volatility with respect to General Fund deposits due to a constitutional change in 2015.

FIGURE 10
Central Tendency of Cigarette, Tobacco & Beer Tax Revenue Year-Over Growth

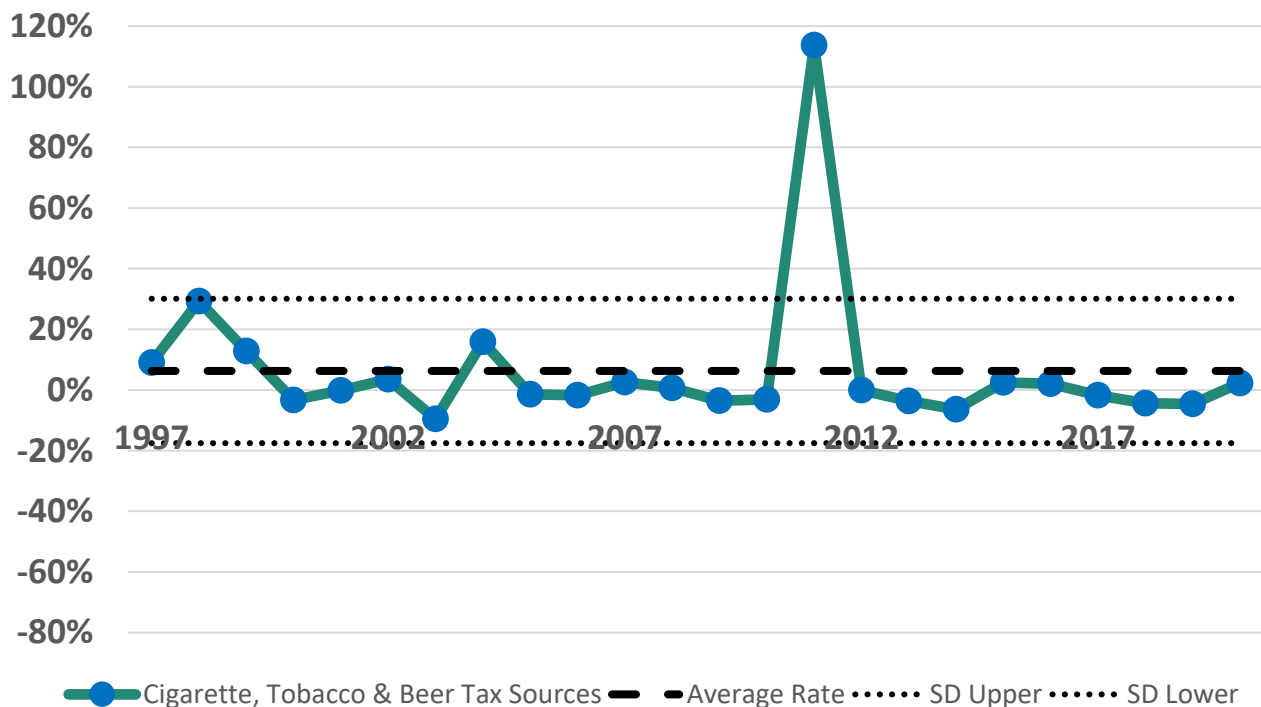
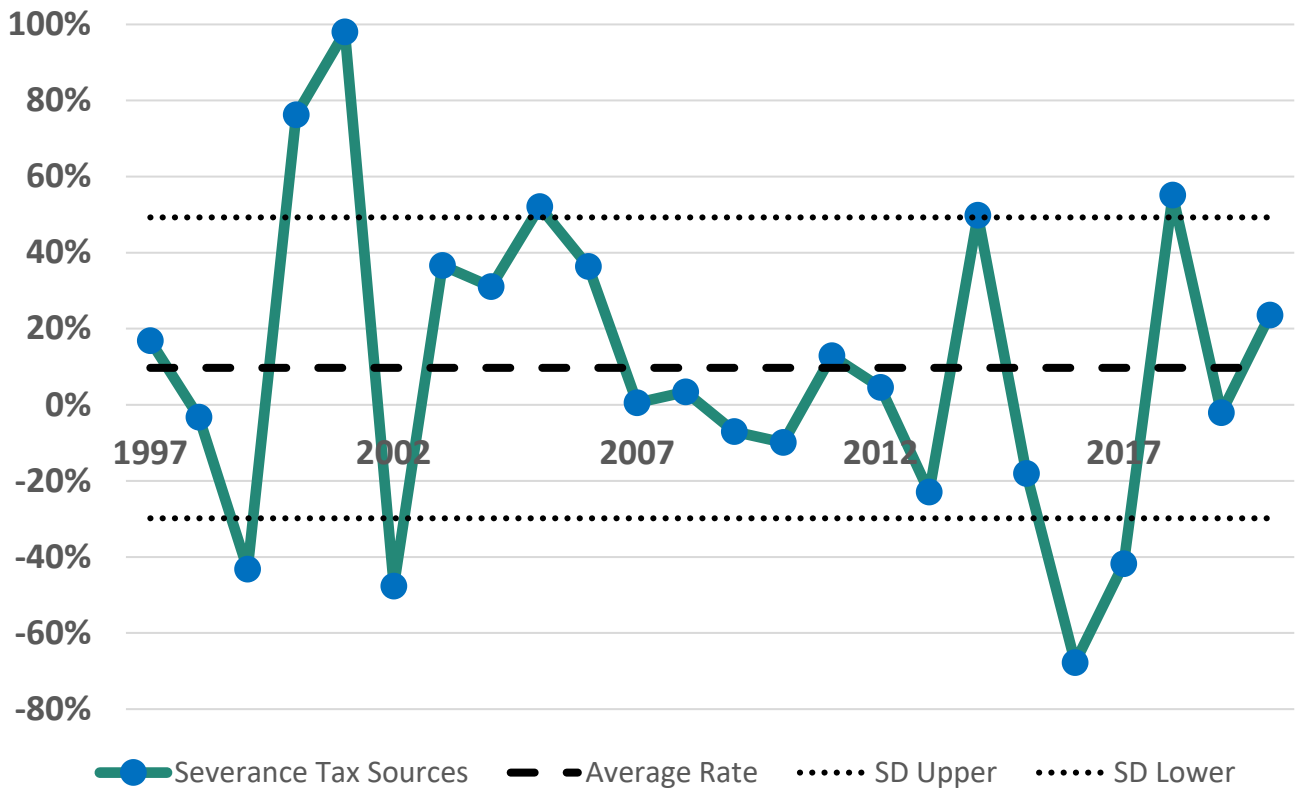


FIGURE 11
Central Tendency of Severance Tax Revenue Year-Over Growth



Education Fund Revenues

The primary sources of revenue for the Education Fund are the individual income tax and corporate income tax. Figures 12 and 13 depict these series and show that the corporate income tax is more volatile than the individual income tax, but both revenue sources are more volatile than the economy in general.

FIGURE 12
Central Tendency of Individual Income Tax Year-Over Growth

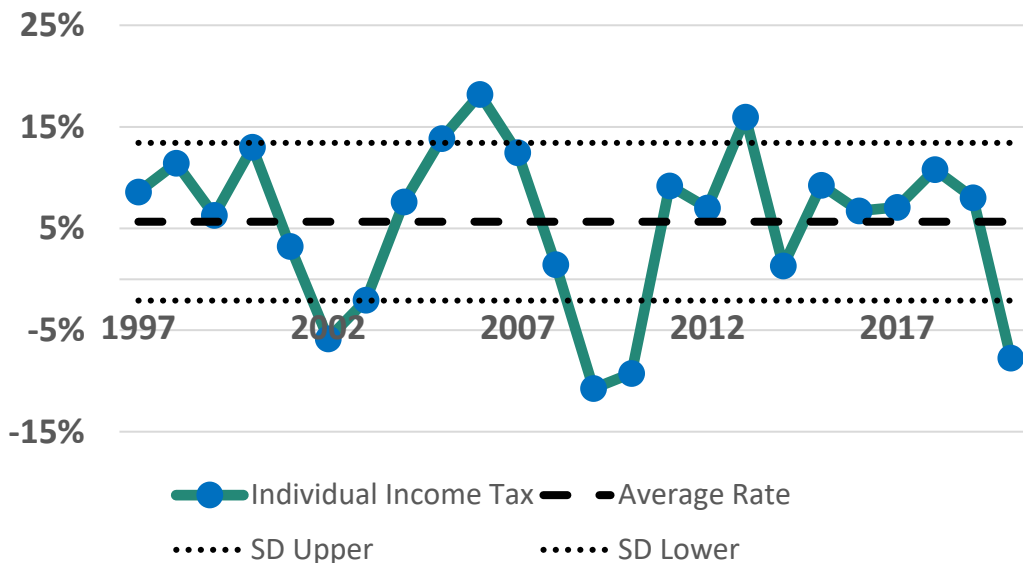
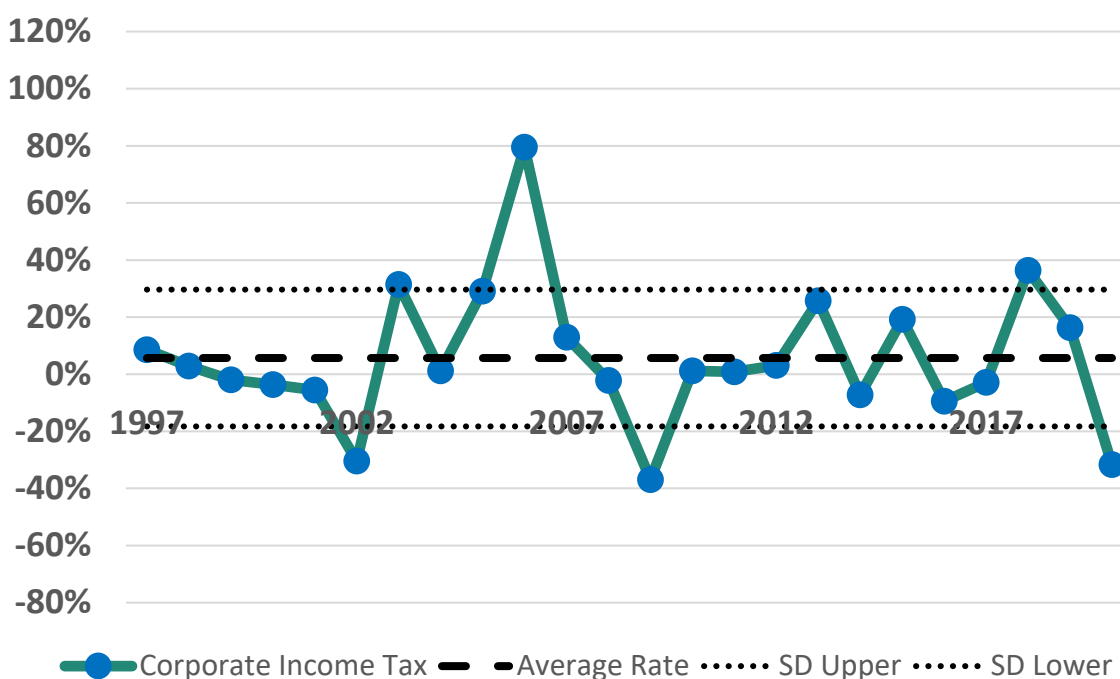


FIGURE 13
Central Tendency of Corporate Income Tax Year-Over Growth



Federal Fund Receipts

Statute ([UCA Section 63J-1-205](#)) also requires that the revenue volatility report consider federal funding included in the state budget and discuss any projected changes in the amount or value of federal funding.

In FY 2021, Utah is expected to receive \$7.25 billion in federal funds, approximating 34% of the total budget. Major programs funded by federal funds include Medicaid (\$3.2 billion), public education programs and school lunches (\$464 million), transportation projects (\$416 million), the Supplemental Nutrition Assistance Program (\$350 million), and Temporary Assistance for Needy Families (\$65 million).

However, as shown in Figure 14, this amount is dramatically higher than previous years, due to federal stimulus to address the COVID-19 pandemic. The FY 2021 federal funds appropriation is 21 percent higher than the appropriation in FY 2020, and 88 percent higher than in FY 2019. Figure 15 compares the absolute percentage error between the actual federal funds receipts trend and the federal funds receipts trend excluding COVID-19 related stimulus dollars, indicating that the sharp increase in federal funds in FY 2020 and FY 2021 heightened the percentage error and volatility. Thus, federal fund receipts are highly volatile. It is unlikely that General Fund rainy-day balances are sufficient to cover such volatility.

Much of the volatility in federal revenue is intentional. During recessions, the federal government uses its borrowing power to bail out states that cannot run deficits. In the 2020 COVID-19 pandemic, the federal government injected between \$10 billion and \$12 billion into Utah's economy – nearly seven percent of our annualized state gross domestic product. The federal government took similar actions in the Great Recession through the American Recovery and Reinvestment Act, although the COVID-19 stimulus aid package was unprecedented in terms of both magnitude and rapid response. As this activity is typically countercyclical with the economy, we recommend Utah policymakers not consider it when determining rainy-day targets.

FIGURE 14
Federal Fund Receipt Trends and Federal Funds as a Percent of the Utah Budget

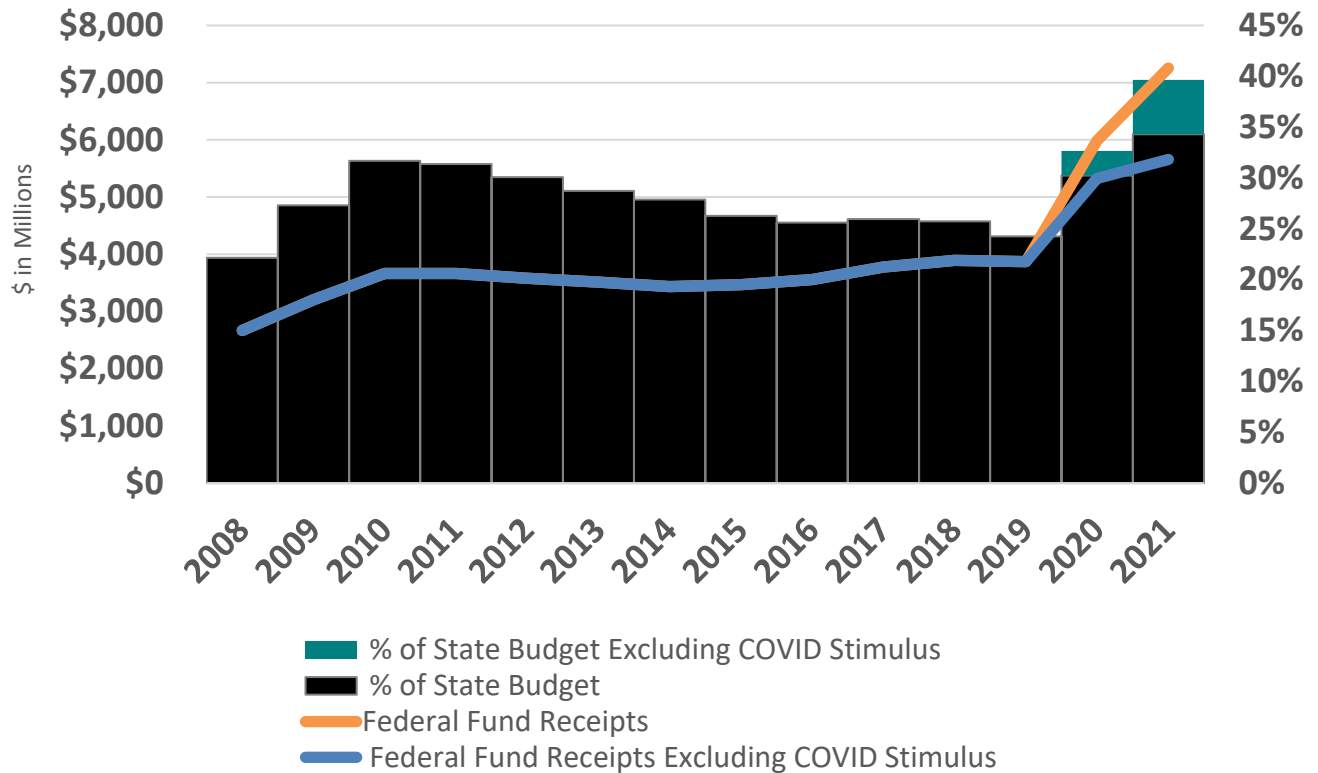
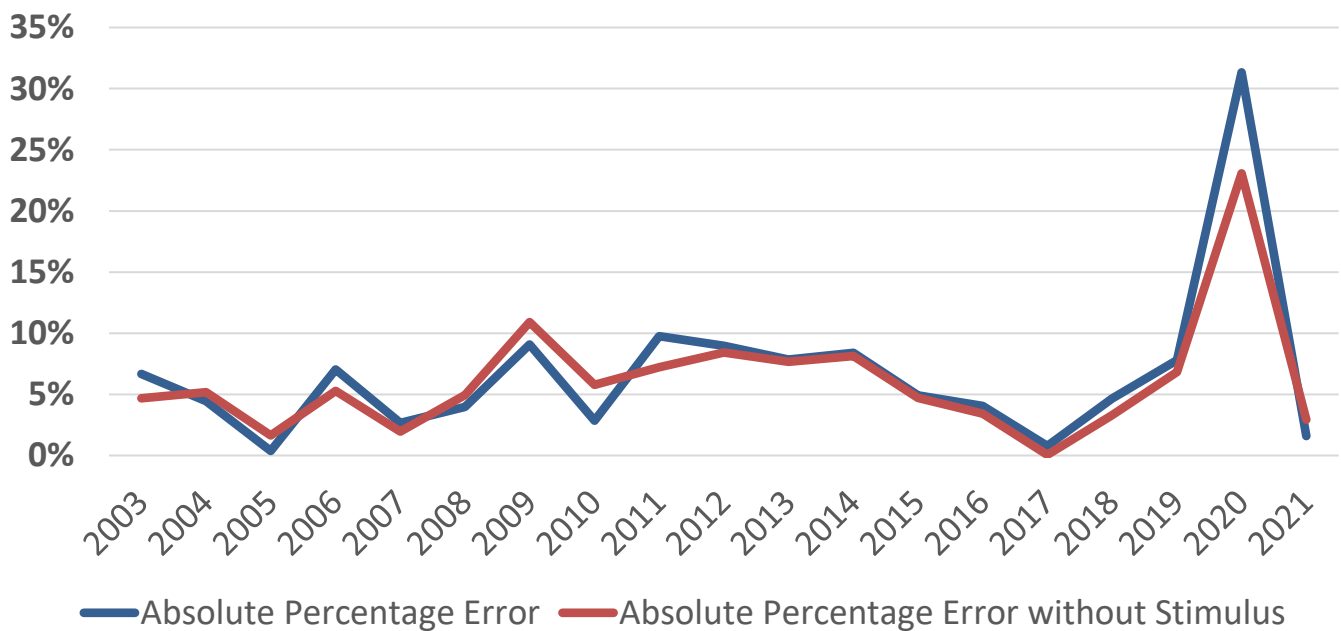


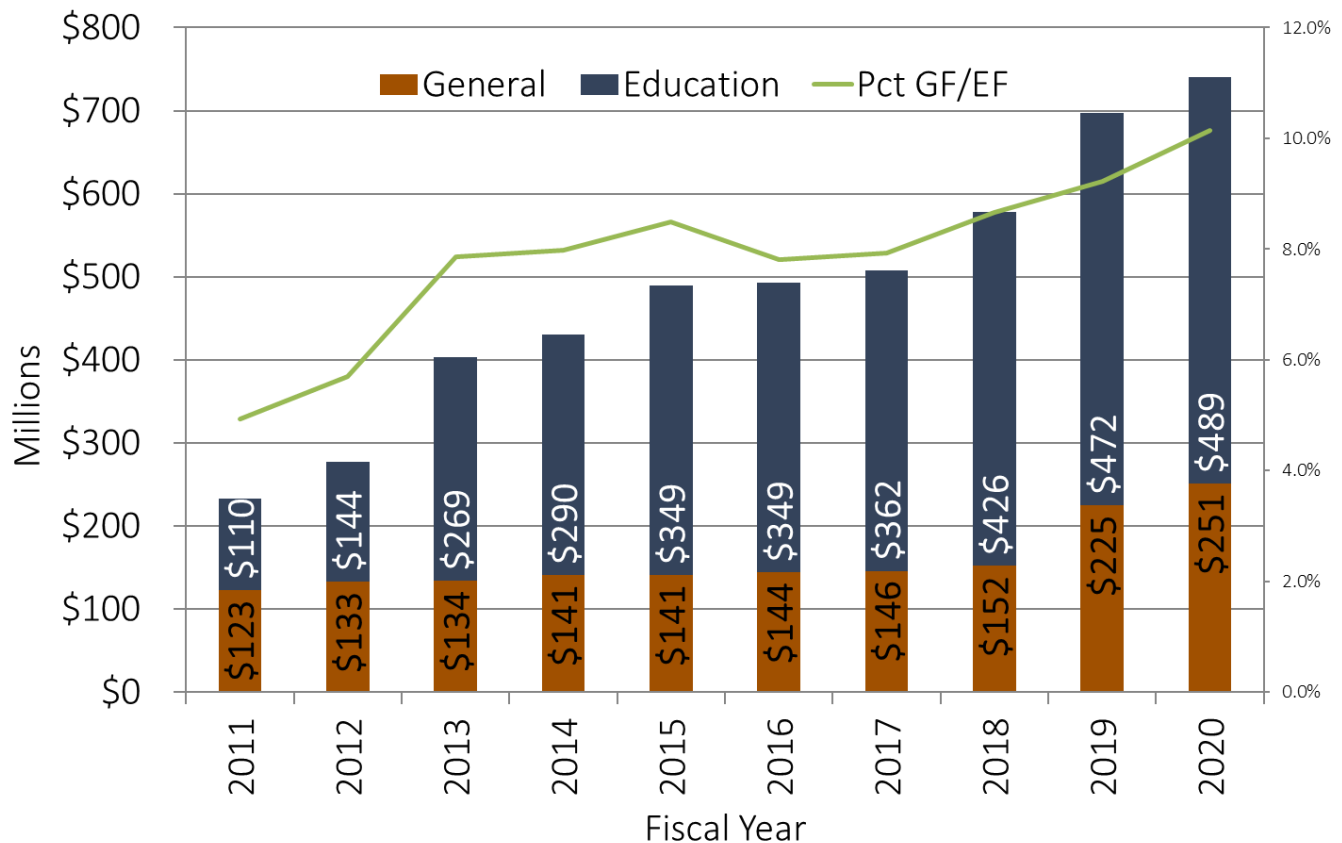
FIGURE 15
Comparison of Absolute Percentage Error of Federal Funds Receipts with and without COVID-19 Stimulus



Rainy-day Balances and Deposit Mechanisms

At the close of FY 2020, Utah's rainy-day fund balances topped \$740 million, including \$251 million in the General Fund Budget Reserve Account, \$489 million in the Education Fund Budget Reserve Account. That would put the General Fund rainy-day fund at its automatic deposit target for FY 2020 and the Education Fund rainy-day fund only a few million dollars below its target.

FIGURE 16
General and Education Fund Rainy Day Reserve Balances



As is shown in Figure 16, the Legislature has made significant progress on deposits to rainy-day funds in the past three years. Most of the progress came through discretionary appropriations; another \$101 million is slated for deposit via appropriation at the close of FY 2021. For these reasons, we believe additional deposit mechanisms are not currently necessary.

Stress Testing the State Budget

In late 2019, LFA, GOMB, and the Utah State Tax Commission conducted their scheduled budget stress testing analysis. It suggested that the state is well-positioned to weather a typical economic downturn, with over \$4.7 billion in aggregate reserves to cover an estimated \$4.6 billion maximum value at risk over a five-year period. In spring 2020, the three entities conducted a special budget stress test to predict the effects of the COVID-19 recession. This analysis estimated a maximum \$2.1 billion value at risk over five years, with \$4.7 billion in aggregate reserves. These reserves are described in greater detail in Table 1 below.

Importantly, formal rainy-day funds are not the state's only budget reserves. Reserve buffers can be characterized as *easily accessible* (e.g., infrastructure working rainy-day funds, certain restricted accounts), *moderately accessible* (nonlapsing balances, unclaimed property, certain earmarks), *somewhat difficult to*

access (capital improvements corpus, restricted fund balances), and *difficult to access* (formal rainy-day funds).

FIGURE 17
State Budget Revenue and Expenditure Risk for Economic Downturn Scenarios

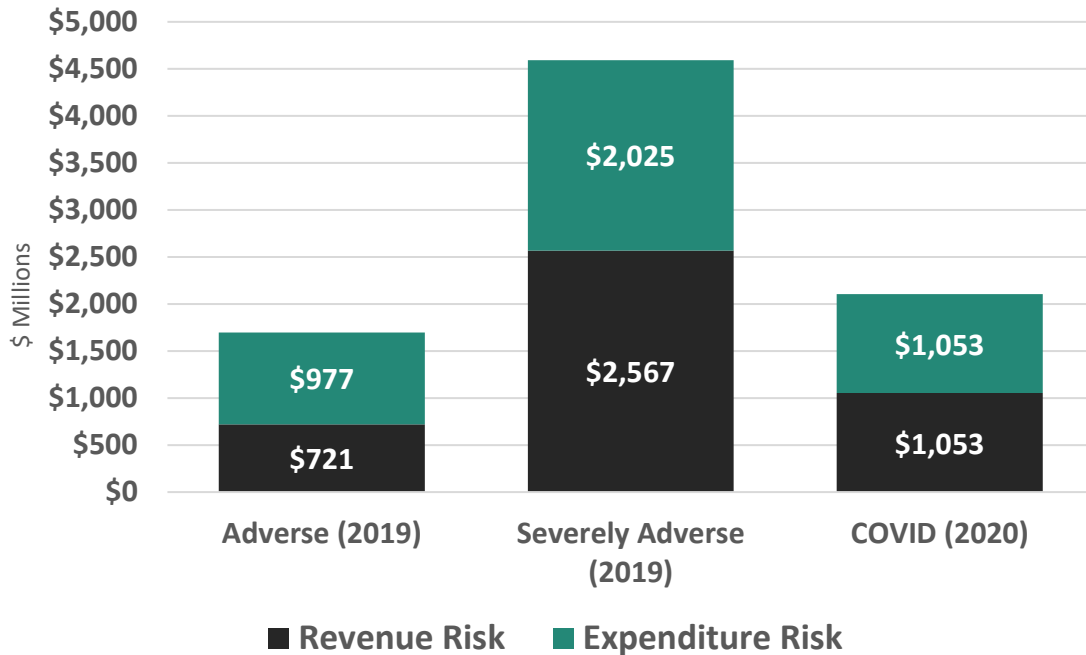
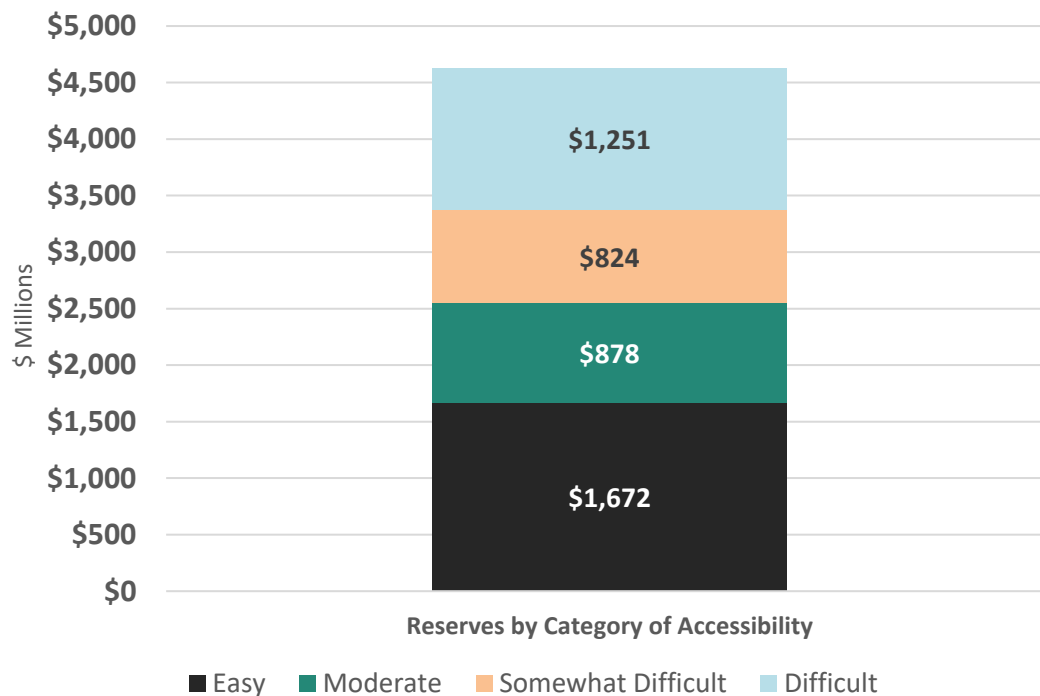


FIGURE 18
State Budget Reserves Available to Offset Economic Risk



Tools for Managing the State Budget

In determining the appropriate size of budget reserve accounts, policymakers should consider all forms of budget “buffering,” not just the budget reserve accounts themselves. That is, the size of budget reserve accounts should be considered in context of other budget management tools. The following list briefly describes several tools used to manage the state budget, in particular during a revenue downturn:

- **Structure of the revenue system itself.** Policymakers control what is taxed and the rate at which it is taxed. To the extent the state’s revenue portfolio is deemed too volatile for budgeting purposes, one option available to policymakers is to change the state’s tax policy, including the relative weighting of each tax in the state’s revenue portfolio and the breadth of what is taxed under each tax. In general, taxes with broader bases will tend to exhibit less volatility over the business cycle. In addition to controlling taxes, policymakers control fees.
- **Revenue estimating process.** Revenue estimates take into account many different current economic factors that influence the state’s tax revenue collections. Two separate point revenue estimates are made for each fiscal year. A consensus estimating process tends to result in a more conservative revenue forecast overall.
- **Revenue monitoring.** Revenues are closely monitored on a regular basis, including through monthly reports from the Tax Commission. This allows the necessary actions to be taken on a timely basis if revenues are not meeting projections.
- **One-time solutions.** Unallocated year-end surpluses, budget reserve accounts (“rainy-day funds”), restricted fund balances, and nonlapsing balances are all potential sources of one-time funding in difficult fiscal circumstances. In addition, one-time options such as a change in the timing of expenditures (deferral) and revenues (acceleration) can provide one-time budget solutions.
- **Capital budgeting.** Budgeting for capital items such as roads and buildings is another budget management mechanism. The state often funds many capital items with cash. In an economic downturn, capital expenses can be postponed or the state can borrow to fund capital expenses. The state currently has hundreds of millions of dollars of cash-funded capital expenses.
- **Budget reprioritization.** Although clearly a difficult process, economic downturns force reprioritization of state funding so that scarce taxpayer resources are targeted to the highest priority programs. If economic changes create a new long-term economic reality, careful consideration should be given to the point at which the state should adjust ongoing budgets to the new ongoing economic reality.

Disaggregated Buffers

The state has a sizable number of budget buffers that, when combined, sum to \$4.7 billion as estimated by the budget stress testing exercise conducted in 2020. In addition to other types of management tools, below is a list of selected budget buffers that currently exist. A full table of buffers is presented in Table 1 below.

- **General Fund Budget Reserve Account (\$251 million).** This is the most flexible of the budget reserve accounts, as General Fund revenues can be used for any legal purpose.
- **Education Fund Budget Reserve Account (\$489 million).** Prior to 2020, individual and corporate income taxes deposited into this account were constitutionally earmarked for public and higher education. In 2020, the Utah Constitution was amended to include spending on children and individuals with disabilities among the allowable uses of these funds. As such, this budget reserve account is separately maintained for these specific funding purposes.

- Medicaid Budget Stabilization Restricted Account (\$75 million). Funds in this account can be used to offset significant increases in state Medicaid expenditures when the state match required increases by 8% or more on a year-over basis.
- Disaster Recovery Restricted Account (\$20 million). Balances in this fund can be used to respond to emergency disaster services for a declared disaster.
- Agency Nonlapsing Balances (\$486 million at FY 2020 year-end). Agency nonlapsing balances constitute another budget buffer. Although the Legislature relied on some of these balances as funding sources for the FY 2021 budget, preliminary estimates indicated that nearly \$486 million in nonlapsing balances were anticipated to be carried over from FY 2020 to FY 2021 (see LFA report at <https://le.utah.gov/interim/2020/pdf/00004445.pdf>).
- Restricted Account Balances. Although some restricted funds would not be available as funding sources during an economic downturn, some activities funded by the General Fund could be shifted to restricted account sources. See LFA report at <https://le.utah.gov/interim/2020/pdf/00004443.pdf> for a description of these restricted funds and their balances.

TABLE 1
Total State Budget Buffers

	One-Time	Ongoing	Five-Year Total
Easy to Access			
Cash Funded Buildings	\$442,500,000	\$2,077,400	\$452,887,000
Buildings Debt Service Offset	-\$339,743,014		-\$339,743,014
Cash Funded Roads		\$292,200,000	\$1,461,000,000
Roads Debt Service Offset	-\$112,415,704		-\$112,415,704
Medicaid Expansion Fund	\$117,254,516		\$117,254,516
Medicaid Budget Stabilization Restricted Account	\$74,818,924		\$74,818,924
Medicaid Restricted Account	\$18,009,958		\$18,009,958
Easy to Access Total	\$200,424,680	\$294,277,400	\$1,671,811,680
Moderately Easy to Access			
Unclaimed Property	\$36,000,000		\$36,000,000
Nonlapsing Balances	\$494,371,290		\$494,371,290
Water Project Earmarks		\$69,592,181	\$347,960,905
Moderately Easy to Access Total	\$530,371,290	\$69,592,181	\$878,332,195
Somewhat Difficult to Access			
General Fund Restricted Fund Balances	\$308,060,000		\$308,060,000
Capital Improvements to 0.9%		\$29,638,200	\$148,191,000
Cash and Investment in Water Loans	\$368,000,000		\$368,000,000
Somewhat Difficult to Access Total	\$676,060,000	\$29,638,200	\$824,251,000
Difficult to Access			
Remaining Capital Improvements		\$105,126,500	\$525,632,500
Education Fund Budget Reserve Account	\$488,700,000		\$488,700,000
General Fund Budget Reserve Account	\$251,222,000		\$251,222,000
Disaster Recovery Account	\$19,873,000		\$19,873,000
Difficult to Access Total	\$724,899,203	\$105,126,500	\$1,250,531,703
Total Reserves	\$2,166,650,970	\$498,634,281	\$4,659,822,375

RECOMMENDATIONS

When considering the appropriate level of budget reserves, policymakers face a delicate balance between maintaining sufficient amounts to appropriately manage an economic downturn and forgoing funding of current needs. In other words, there is an opportunity cost of accumulating reserves. Based upon measured revenue volatility, LFA and GOMB believe that the current automatic year-end surplus transfer targets equaling 9% of General Fund appropriations and 11% of Education Fund appropriations are appropriate. Because these automatic transfer targets are percentage-based, the dollar amount of these targets increase over time as appropriations increase, meaning the budget reserve accounts will continue to grow over time as year-end surpluses occur. LFA and GOMB believe that existing rainy-day fund deposit targets are sufficient for managing revenue forecast error between legislative sessions, including special sessions that could be called to address fiscal issues. Given that federal funds are typically countercyclical anyway, we do not recommend changing rainy-day fund targets for federal fund volatility. Due to the progress that the Legislature has made in meeting these rainy-day transfer targets with appropriated deposits, we recommend no additional automatic deposit mechanisms beyond the percentage-based transfers of surplus. We believe the current rainy-day fund balances, viewed in context of our recent budget stress testing analysis, suggest Utah is fiscally well-positioned to weather the current recession or a future typical recession.